1073-92-125   **ilker Tunc*** (`itunc@email.wm.edu`), Applied Science Department, College of William & Mary, McGlothlin-Street Hall 314, Williamsburg, VA 23185, and **Leah B Shaw**. *Dynamics of infection spreading in an adaptive network with two coupled communities.*

Epidemic spreading in a population with heterogeneous contacts has frequently been modeling using social networks. However, people tend to change their social connections during an epidemic in order to avoid disease exposure, which makes the structure of the network change adaptively in response to the dynamics of the nodes. This feature has been studied before without considering community structure. Here we study the effect of community structure on epidemic spread in adaptive networks. We use an SIS (susceptible-infected-susceptible) model in an adaptive network having two coupled communities. We show the effect of coupling and adaptation on epidemic spreading in heterogeneous communities. We also show how the network structure changes in response to infection spread in the network. (Received July 29, 2011)